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EQUINIX HYPERSCALE 2 (ML7) Srl

NUOVO DATA CENTER A SETTIMO MILANESE (MI)

commessa	file			
24-06 ML8	ML8-CC3-T01.docx			
data emissione	revisione	redatto	controllato	approvato
20.12.2025	-	LPP	LV	LV

VERIFICA PRELIMINARE EX ART. 6 D.LGS 152/06

ALLEGATO 4 - SCHEDE TECNICHE GENERATORI

cod. elaborato

CC3 T01

A NORMA DELLE VIGENTI LEGGI SUI DIRITTI D'AUTORE IL PRESENTE DOCUMENTO NON PUÒ ESSERE RIPRODOTTO NÉ DIVULGATO A TERZI SENZA IL NOSTRO CONSENSO – TRIBUNALE COMPETENTE MILANO

Allegato 1

Scheda tecnica e dati di emissione generatori Data Center ML8

CUMMINS UK

PROJECT: EQUINIX ML08

REFERENCE NUMBER: ML08

TECHNICAL SUBMITTAL: 5 CONSTRUCTION DESIGN (CA)

WORKS PACKAGE: GENERATOR

TECH SUB TITLE: GENERATOR DATASHEET

TECHNICAL SUBMITTAL NUMBER:

ML08-CMM-TR-ZZ-TS-E-GEN-0003

REVISION P01

Issue No. & Date Key:

Rev No:	Date:	Prepared by:	Details:
P01	13/06/2025	G. White	Issued for Approval

Approval Status Key:
A = Approved – No Comments
B = Approved for build / minor comments
C = Rejected

Consultant Name	Approval Status	Date	Signed

Specification Sheet

Diesel Generator Set QSK95 Series Engine

3500 kVA-3750 kVA 50 Hz

Unregulated

Description

Cummins® commercial generator sets are fully integrated power generation systems providing optimum performance, fuel economy, reliability and versatility for stationary Standby, Prime and Continuous power applications.

Features

Cummins Heavy-duty Engine - Rugged 4-cycle industrial diesel delivers reliable power, low emissions and fast response to load changes.

Alternator - Several alternator sizes offer selectable motor starting capability with low reactance windings, low waveform distortion with non-linear loads and fault clearing short-circuit capability.

Control System - The PowerCommand® digital control is standard equipment and provides total genset system integration including automatic remote starting/stopping, precise frequency and voltage regulation, alarm and status message display, AmpSentry™ protective relay, output metering and auto-shutdown

.

Cooling System - Standard and enhanced integral set-mounted radiator systems, designed and tested for rated ambient temperatures, simplifies facility design requirements for rejected heat. Also optional remote cooled configuration for non-factory supplied cooling systems.

Warranty and Service - Backed by a comprehensive warranty and worldwide distributor network.

NFPA - The generator set accepts full rated load in a single step in accordance with NFPA 110 for Level 1 systems.

ISO8528-5 G3 Capable - refer to factory for site and configuration specific transient performance classification

	Standby Rating	Prime Rating	Continuous Rating	Emissions Compliance	Data Sheets
Model	**50 Hz kVA (kW)**	**50 Hz kVA (kW)**	**50 Hz kVA (kW)**		**50 Hz**
C3500 D5	3500 (2800)	3125 (2500)	2750 (2200)	Unregulated	NAD-5878-EN
C3750 D5	3750 (3000)	3350 (2680)	3000 (2400)	Unregulated	NAD-5916-EN

Note: All ratings include radiator fan losses.

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Generator Set Specifications

Performance Class	Genset models have been tested in accordance with ISO 8528-5. Consult factory for transient performance information.
Voltage regulation, no load to full load	± 0.5%
Random voltage variation	± 0.5%
Frequency regulation	Isochronous
Random frequency variation	± 0.25%
Electromagnetic Compatibility Performance	Emissions to EN 61000-6-2:2005 Immunity to EN 61000-6-4:2007+A1:2011 Complies with ICES-002

Engine Specifications

Bore	190 mm (7.48 in)
Stroke	210 mm (8.27 in)
Displacement	95.3 litres (5816 in^3)
Configuration	Cast iron, V 16 cylinder
Battery capacity	6 x 1400 amps minimum at ambient temperature of -18 °C (0 °F)
Battery charging alternator	140 amps
Starting voltage	24 volt, negative ground
Fuel system	Cummins modular common rail system
Fuel filter	On engine triple element, 5 micron primary filtration with water separators, 3 micron/2 micron (filter in filter design) secondary filtration.
Fuel transfer pump	Electronic variable speed priming and lift pump
Breather	Cummins impactor breather system
Air cleaner type	Unhoused dry replaceable element
Lube oil filter type(s)	Spin-on combination full flow filter and bypass filters
Standard cooling system	High ambient compact cooling system (ship loose) High ambient cooling system (ship loose)

Alternator Specifications

Design	Brushless, 4 pole, drip proof, revolving field
Stator	Optimal
Rotor	Two bearing, flexible coupling
Insulation system	Class H on low and medium voltage, Class F on high voltage
Standard temperature rise	125 ºC Standby/105 ºC Prime
Exciter type	Optimal
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct drive centrifugal blower fan
AC waveform Total Harmonic Distortion (THDV)	< 5% no load to full linear load, < 3% for any single harmonic
Anti-condensation heater	1400 watt

Available Voltages

50 Hz Line – Neutral/Line – Line

• 220/380	• 254/440	• 3464/6000	• 5775/10000
• 230/400	• 400/690	• 3637/6300	• 6060/10500
• 240/415	• 1905/3300	• 3810/6600	• 6350/11000

Note: Consult factory for other voltages.

Generator Set Options and Accessories

Engine

- 400 V thermostatically controlled coolant heater for ambient above 4.5 °C (40 °F)
- Heavy duty air cleaner
- Redundant fuel filter
- Air starter
- Redundant electric starting
- Lube oil make up
- Coalescing breather filter

Alternator

- 80 °C rise
- 105 °C rise
- 125 °C rise
- 150 °C rise
- Differential current transformers

Cooling System

- Enhanced high ambient cooling system (ship loose)
- High ambient compact cooling system (ship loose)
- High ambient cooling system (ship loose)
- Remote cooled configuration

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Generator Set Options and Accessories (continued)

Control Panel

- Multiple language support
- Ground fault indication
- Remote annunciator panel
- Paralleling and shutdown alarm relay package
- Floor mounted pedestal installed control panel

Generator Set

- Battery
- Battery charger
- LV and MV entrance box
- Spring isolators
- Factory witness tests
- IBC and IEEE seismic certification

Warranty

- 3, 5, or 10 years for Standby including parts (labor and travel optional)
- 2 or 3 years for Prime including parts, labor and travel

Note: Some options may not be available on all models - consult factory for availability.

PowerCommand 3.3 – Control System

An integrated microprocessor based generator set control system providing voltage regulation, engine protection, alternator protection, operator interface and isochronous governing. Refer to document S-1570 for more detailed information on the control.

AmpSentry – Includes integral AmpSentry protection, which provides a full range of alternator protection functions that are matched to the alternator provided.

Power Management – Control function provides battery monitoring and testing features and smart starting control system.

Advanced Control Methodology – Three phase sensing, full wave rectified voltage regulation, with a PWM output for stable operation with all load types.

Communications Interface – Control comes standard with PCCNet and Modbus interface.

Service - InPower™ PC-based service tool available for detailed diagnostics, setup, data logging and fault simulation.

Easily Upgradeable – PowerCommand controls are designed with common control interfaces.

Reliable Design – The control system is designed for reliable operation in harsh environment.

Multi-language Support

Operator Panel Features

Operator/display Functions

- Displays paralleling breaker status
- Provides direct control of the paralleling breaker
- 320 x 240 pixels graphic LED backlight LCD
- Auto, manual, start, stop, fault reset and lamp test/panel lamp switches
- Alpha-numeric display with pushbuttons
- LED lamps indicating genset running, remote start, not in auto, common shutdown, common warning, manual run mode, auto mode and stop

Paralleling Control Functions

- First Start Sensor™ system selects first genset to close to bus
- Phase lock loop synchronizer with voltage matching
- Sync check relay
- Isochronous kW and kVar load sharing
- Load govern control for utility paralleling
- Extended paralleling (base load/peak shave) mode
- Digital power transfer control, for use with a breaker pair to provide open transition, closed transition, ramping closed transition, peaking and base load functions.

Other Control Features

- 150 watt anti-condensation heater
- DC distribution panel
- AC auxiliary distribution panel

Alternator Data

- Line-to-Neutral and Line-to-Line AC volts
- 3-phase AC current
- Frequency
- kW, kVar, power factor kVA (three phase and total)
- Winding temperature
- Bearing temperature

Engine Data

- DC voltage
- Engine speed
- Lube oil pressure and temperature
- Coolant temperature
- Comprehensive FAE data (where applicable)

Other Data

- Genset model data
- Start attempts, starts, running hours, kW hours
- Load profile (operating hours at % load in 5% increments)
- Fault history
- Data logging and fault simulation (requires InPower)
- Air cleaner restriction indication
- Exhaust temperature in each cylinder

Standard Control Functions

Digital Governing

- Integrated digital electronic isochronous governor
- Temperature dynamic governing

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Standard Control Functions (continued)

Digital Voltage Regulation

- Integrated digital electronic voltage regulator
- 3-phase, 4-wire Line-to-Line sensing
- Configurable torque matching

AmpSentry AC Protection

- AmpSentry protective relay
- Over current and short circuit shutdown
- Over current warning
- Single and three phase fault regulation
- Over and under voltage shutdown
- Over and under frequency shutdown
- Overload warning with alarm contact
- Reverse power and reverse Var shutdown
- Field overload shutdown

Engine Protection

- Battery voltage monitoring, protection and testing
- Overspeed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown
- Low coolant level warning or shutdown
- Low coolant temperature warning
- Fail to start (overcrank) shutdown
- Fail to crank shutdown
- Cranking lockout
- Sensor failure indication
- Low fuel level warning or shutdown
- Fuel-in-rupture-basin warning or shutdown
- Full authority electronic engine protection

Control Functions

- Time delay start and cool down
- Real time clock for fault and event time stamping
- Exerciser clock and time of day start/stop
- Data logging
- Cycle cranking
- Load shed
- Configurable inputs and outputs (20)
- Remote emergency stop

Ratings Definitions

Emergency Standby Power (ESP):

Applicable for supplying power continuously to varying electrical loads for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528 and ISO 3046-1, obtained and corrected in accordance with ISO 15550).

Limited-Time Running Power (LTP):

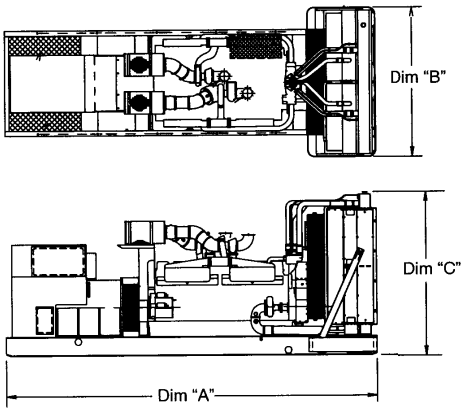
Applicable for supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.

Prime Power (PRP):

Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046-1. Data shown above represents gross engine performance and capabilities as per ISO 3046-1, obtained and corrected in accordance with ISO 15550.

Base Load (Continuous) Power (COP):

Applicable for supplying power continuously to a constant load up to the full output rating for unlimited hours. No sustained overload capability is available for this rating. Consult authorized distributor for rating. (Equivalent to Continuous Power in accordance with ISO 8528 and ISO 3046-1, obtained and corrected in accordance with ISO 15550).



This outline drawing is for reference only. See PowerSuite library for specific model outline drawing number.

Do not use for installation design

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Model	Dim “A”* mm (in.)	Dim “B”* mm (in.)	Dim “C”* mm (in.)	Set weight* dry kg (lbs)	Set weight* wet kg (lbs)
C3500 D5	7912 (312)	2608 (103)	3366 (133)	28801 (63496)	30668 (67611)
C3750 D5	7912 (312)	2608 (103)	3366 (133)	28801 (63496)	30668 (67611)

* Weights and dimensions represent a set with standard features and alternator frame S9.
See outline drawing for weights and dimensions of other configurations.

Codes and Standards

Codes or standards compliance may not be available with all model configurations – consult factory for availability.

ISO 9001 **ISO14001** **ISO 45001**	This product was manufactured in a facility whose quality management system is certified to ISO 9001 and its Health Safety Environmental Management Systems certified to ISO 14001 and ISO 45001.	CE	The CE marking is only valid when equipment is used in a fixed installation application. Material compliance declaration is available upon request.
	All models are CSA certified to product class 4215-01.	UK CA	The UKCA marking is only valid when equipment is used in a fixed installation application. Material compliance declaration is available upon request.
ISO 8528	This generator set has been designed to comply with ISO 8528 standards.	**International Building Code**	The generator set package is available certified for seismic application in accordance with International Building Code.

For more information contact your local Cummins distributor or visit power.cummins.com

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Generator set data sheet

Model:	**C3500 D5**
Frequency:	**50 Hz**
Fuel type:	**Diesel**
kVA rating:	**3500 Standby**
	3125 Prime
	2750 Continuous
Emissions level:	**Unregulated**

Fuel consumption

	Standby				Prime				Continuous			
	kVA (kW)				kVA (kW)				kVA (kW)			
Ratings	3500 (2800)				3125 (2500)				2750 (2200)			
Ratings without fan[1]	3594 (2875)				3220 (2576)				2845 (2276)			
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full
US gph	51	91	133	177	47	83	120	161	42	75	107	141
L/hr	192	346	503	671	176	315	453	608	161	284	404	535

[1] Ratings for reference with the optional remote radiator cooling configuration. See note 1 under “Alternator data” section.

Engine

	Standby rating	Prime rating	Continuous rating
Engine model	QSK95-G4		
Configuration	Cast iron, vee, 16 cylinder		
Aspiration	Turbocharged and after-cooled		
Gross engine power output, kWm (bhp)	3026 (4058)	2716 (3642)	2406 (3226)
BMEP at set rated load, kPa (psi)	2545 (369)	2283 (331)	2021 (293)
Bore, mm (in)	190.0 (7.48)		
Stroke, mm (in)	210.1 (8.27)		
Rated speed, rpm	1500		
Piston speed, m/s (ft/min)	10.5 (2067)		
Compression ratio	15.5:1		
Lube oil capacity, L (qt)	647 (684)		
Overspeed limit, rpm	1725		
Regenerative power, kW	230		

Fuel flow

Maximum fuel flow, L/hr (US gph)	1393 (368)
Maximum fuel inlet restriction with clean filter, kPa (in Hg)	30.48 (9)
Maximum fuel return line restriction kPa (in Hg)	33.8 (10)
Maximum fuel inlet temperature, °C (°F)	71.1 (160)
Maximum fuel outlet temperature, °C (°F)	92.2 (198)

Air

Combustion air, m^3/min (scfm)	241 (8489)	229 (8063)	206 (7256)
Maximum air cleaner restriction with clean filter, mm H_2O (in H_2O)	457 (18)		
Alternator cooling air, m^3/min (cfm)	240 (8476)		

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Exhaust	Standby rating	Prime rating	Continuous rating
Exhaust flow at set rated load, m^3/min (cfm)	552 (19470)	517 (18227)	463 (16335)
Exhaust temperature at set rated load, °C (°F)	404 (758)	394 (741)	389 (732)
Maximum back pressure, kPa (in H_2O)	7 (28)		

Set-mounted radiator cooling	High Ambient	High Ambient Compact
Ambient design, °C (°F)	45 (113)	50 (122)
Fan load, kW_m (HP)	78 (105)	130 (175)
Coolant capacity (with radiator), L (US gal)	1155 (305)	1238 (327)
Cooling system air flow, m^3/min (scfm)	3135 (110700)	2352 (83054)
Maximum cooling air flow static restriction, kPa (in H_2O)	0.12 (0.5)	0.12 (0.5)

Set-mounted radiator cooling	Enhanced High Ambient
Ambient design, °C (°F)	55 (131)
Fan load, kW_m (HP)	78 (105)
Coolant capacity (with radiator), L (US gal)	1155 (305)
Cooling system air flow, m^3/min (scfm)	3135 (110700)
Maximum cooling air flow static restriction, kPa (in H_2O)	0.12 (0.5)

Optional remote radiator cooling			
Engine coolant capacity, L (US gal)	379 (100)		
Max flow rate at max friction head, jacket water circuit, L/min (US gal/min)	2419 (639)		
Max flow rate at max friction head, aftercooler circuit, L/min (US gal/min)	579 (153)		
Heat rejected, jacket water circuit, MJ/min (Btu/min)	78.4 (74260)	71.5 (67743)	64.4 (60986)
Heat rejected, aftercooler circuit, MJ/min (Btu/min)	18.8 (17795)	16.6 (15680)	13.1 (12336)
Heat rejected, fuel circuit, MJ/min (Btu/min)	0.33 (309)	0.33 (309)	0.33 (309)
Total heat radiated to room, MJ/min (Btu/min)	23.0 (21712)	20.7 (19591)	18.2 (17224)
Maximum friction head, jacket water circuit, kPa (psi)	59 (8.5)		
Maximum friction head, aftercooler circuit, kPa (psi)	59 (8.5)		
Maximum static head above engine crank centerline, jacket water circuit, m (ft)	18 (60)		
Maximum static head above engine crank centerline, aftercooler circuit, m (ft)	18 (60)		
Maximum jacket water outlet temp, °C (°F)	110 (220)	100 (212)	100 (212)
Maximum aftercooler inlet temp, °C (°F)	71.1 (160)	68 (155)	68 (155)
Maximum aftercooler inlet temp at 25 °C (77 °F) ambient, °C (°F)	46.1 (115)		

Note: For non-standard remote installations contact your local Cummins representative.

Weights[2]	
Unit dry weight kgs (lbs)	29529 (65100)
Unit wet weight kgs (lbs)	31194 (68771)

Note: Weights represent a set with standard features and alternator frame P80X. See outline drawing for weights of other configurations.

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Derating factors

Standby	**High Ambient Cooling System:** Full genset power available up to 1809 m (5935 ft) at ambient temperatures up to 40 °C (104 °F). Above these conditions, derate at 4.2% per 305 m (1000 ft) and 11.9% per 10 °C (18 °F). **High Ambient Compact Cooling System:** Full genset power available up to 999 m (3278 ft) at ambient temperatures up to 40 °C (104 °F). Above these conditions, derate at 5.8% per 305 m (1000 ft) and 19.3% per 10 °C (18 °F). **Enhanced High Ambient Cooling System:** Full genset power available up to 1834 m (6016 ft) at ambient temperatures up to 40 °C (104 °F) and 1376 m (4513 ft) at ambient temperatures up to 50 °C (122 °F). Above these conditions, derate at 4.2% per 305 m (1000 ft) and 11.8% per 10 °C (18 °F).
Prime	**High Ambient Cooling System:** Full genset power available up to 2029 m (6656 ft) at ambient temperatures up to 40 °C (104 °F). Above these conditions, derate at 3.2% per 305 m (1000 ft) and 9.7% per 10 °C (18 °F). **High Ambient Compact Cooling System:** Full genset power available up to 2106 m (6909 ft) at ambient temperatures up to 40 °C (104 °F). Above these conditions, derate at 3.2% per 305 m (1000 ft) and 9% per 10 °C (18 °F). **Enhanced High Ambient Cooling System:** Full genset power available up to 2106 m (6908 ft) at ambient temperatures up to 40 °C (104 °F) and 1219 m (4000 ft) at ambient temperatures up to 50 °C (122 °F). Above these conditions, derate at 3.2% per 305 m (1000 ft) and 9.4% per 10 °C (18 °F).
Continuous	**High Ambient Cooling System:** Full genset power available up to 2759 m (9051 ft) at ambient temperatures up to 40 °C (104 °F). Above these conditions, derate at 6.9% per 305 m (1000 ft) and 21.7% per 10 °C (18 °F). **High Ambient Compact Cooling System:** Full genset power available up to 2852 m (9356 ft) at ambient temperatures up to 40 °C (104 °F). Above these conditions, derate at 6.9% per 305 m (1000 ft) and 20.4% per 10 °C (18 °F). **Enhanced High Ambient Cooling System:** Full genset power available up to 2846 m (9338 ft) at ambient temperatures up to 40 °C (104 °F) and 1882 m (6173 ft) at ambient temperatures up to 50 °C (122 °F). Above these conditions, derate at 6.9% per 305 m (1000 ft) and 21.7% per 10 °C (18 °F).

Ratings definitions

Emergency Standby Power (ESP):	**Limited-Time Running Power (LTP):**	**Prime Power (PRP):**	**Base Load (Continuous) Power (COP):**
Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.	Applicable for supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.	Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.	Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) is in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.

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Alternator data[1]

Voltage	Connection	Temp rise ºC	Duty[2]	Max surge kVA	Winding No.	Alternator	Feature code
380	Wye, 3-phase	125	S	11145	12	ADS-532	BA59-2
380-440	Wye, 3-phase	150/125	S/P	10132	12	ADS-531	B667-2
380	Wye, 3-phase	105	P	9956	12	ADS-531	B630-2
380	Wye, 3-phase	80	C	11145	12	ADS-532	BB83-2
380	Wye, 3-phase	105	C	9956	12	ADS-531	BA58-2
400	Wye, 3-phase	105	S	11146	12	ADS-532	BA60-2
400-415	Wye, 3-phase	125/105/80	S/P/C	10132	12	ADS-531	B637-2
400-415	Wye, 3-phase	80	P	11146	12	ADS-532	B634-2
400	Wye, 3-phase	105	C	9954	12	ADS-531	BA61-2
415	Wye, 3-phase	105	S	11146	12	ADS-532	BA67-2
415	Wye, 3-phase	105	C	10132	12	ADS-531	BA65-2
440	Wye, 3-phase	125/105	S/P	11025	12	ADS-532	B712-2
440	Wye, 3-phase	80	C	11025	12	ADS-532	BA70-2
440	Wye, 3-phase	105	C	9853	12	ADS-531	BA71-2
690	Wye, 3-phase	105	S	11970	65	ADS-586	BA75-2
690	Wye, 3-phase	125	S	9960	65	ADS-531	BA77-2
690	Wye, 3-phase	150	S	9960	65	ADS-531	BA78-2
690	Wye, 3-phase	105	P	9960	65	ADS-531	BA74-2
690	Wye, 3-phase	125	P	9960	65	ADS-531	BA76-2
690	Wye, 3-phase	80	C	9960	65	ADS-531	BA72-2
690	Wye, 3-phase	105	C	9960	65	ADS-531	BA73-2
3300	Wye, 3-phase	80	S	10845	51	ADS-587	B620-2
3300	Wye, 3-phase	105	S	10845	51	ADS-587	BA80-2
3300	Wye, 3-phase	125/105/80	S/P/C	9481	51	ADS-545	B470-2
3300	Wye, 3-phase	150	S	9481	51	ADS-545	BB78-2
3300	Wye, 3-phase	80	P	10845	51	ADS-587	BA79-2
3300	Wye, 3-phase	125	P	7040	51	ADS-520	BB79-2
3300	Wye, 3-phase	105	C	7040	51	ADS-520	B471-2
6000	Wye, 3-phase	80	S	13774	8009	ADS-590	BA83-2
6000	Wye, 3-phase	105	S	10463	71	ADS-534	BA86-2
6000	Wye, 3-phase	125	S	10463	71	ADS-534	BB80-2
6000	Wye, 3-phase	80	P	10463	71	ADS-534	BA82-2
6000	Wye, 3-phase	105	P	8866	71	ADS-533	BA85-2
6000	Wye, 3-phase	80	C	8866	71	ADS-533	BA81-2
6000	Wye, 3-phase	105	C	6900	71	ADS-523	BA84-2
6300-6600	Wye, 3-phase	80	S	13770/14175	8008	ADS-589	B642-2
6300	Wye, 3-phase	105	S	10727	61	ADS-534	B497-2
6300	Wye, 3-phase	125	S	10727	61	ADS-534	BA88-2
6300	Wye, 3-phase	80	P	10727	61	ADS-534	B645-2
6300	Wye, 3-phase	105	P	9440	61	ADS-533	B498-2

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Alternator data[1] (continued)

Voltage	Connection	Temp rise ºC	Duty[2]	Max surge kVA	Winding No.	Alternator	Feature code
6300	Wye, 3-phase	80	C	9440	61	ADS-533	BA87-2
6300	Wye, 3-phase	105	C	9440	61	ADS-533	B482-2
6600	Wye, 3-phase	105	S	10656	61	ADS-534	B679-2
6600	Wye, 3-phase	125	S	9378	61	ADS-533	BA91-2
6600	Wye, 3-phase	80	P	10656	61	ADS-534	BA89-2
6600	Wye, 3-phase	105	P	9378	61	ADS-533	BA90-2
6600	Wye, 3-phase	80	C	9378	61	ADS-533	B828-2
6600	Wye, 3-phase	105	C	6932	61	ADS-523	B793-2
10k	Wye, 3-phase	80	S	13985	8023	ADS-590	BA93-2
10k	Wye, 3-phase	105	S	10427	81	ADS-534	BA94-2
10k	Wye, 3-phase	125	S	10427	81	ADS-534	BA95-2
10k	Wye, 3-phase	80	P	10427	81	ADS-534	BA92-2
10k	Wye, 3-phase	105	P	9125	81	ADS-533	B494-2
10k	Wye, 3-phase	80	C	9125	81	ADS-533	B794-2
10k	Wye, 3-phase	105	C	6627	81	ADS-523	B474-2
10.5k	Wye, 3-phase	80	S	13770	8022	ADS-589	BA98-2
10.5k	Wye, 3-phase	105	S	10665	83	ADS-534	BB01-2
10.5k	Wye, 3-phase	125	S	10665	83	ADS-534	BB02-2
10.5k	Wye, 3-phase	80	P	12784	8021	ADS-588	BA97-2
10.5k	Wye, 3-phase	105	P	10665	83	ADS-534	BA99-2
10.5k	Wye, 3-phase	80	C	10665	83	ADS-534	BA96-2
10.5k	Wye, 3-phase	105	C	9333	83	ADS-533	B475-2
11k	Wye, 3-phase	80	S	13770	8022	ADS-589	B624-2
11k	Wye, 3-phase	105	S	10613	83	ADS-534	B477-2
11k	Wye, 3-phase	125	S	10613	83	ADS-534	BB84-2
11k	Wye, 3-phase	80	P	10613	83	ADS-534	B985-2
11k	Wye, 3-phase	105	P	9288	83	ADS-533	B496-2
11k	Wye, 3-phase	80	C	9288	83	ADS-533	B594-2
11k	Wye, 3-phase	105	C	6784	83	ADS-523	B478-2

Notes:

[1] Alternator data is configured for a set with ratings including engine cooling fan losses and standard features at 40 °C ambient temperature. For non-standard configurations, including remote radiator applications, check appropriate alternator data sheets or contact your local Cummins representative.

[2] Standby (S), Prime (P) and Continuous ratings (C).

[3] Maximum rated starting kVA that results in a minimum of 90% of rated sustained voltage during starting.

Warning: Back feed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is open.

For more information contact your local Cummins distributor or visit power.cummins.com

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NAD-5878-EN (01/23)

December 7th, 2023

To Whom It May Concern:

With regards to Cummins Power Systems (CPS) manufactured diesel generator set model **C3500 D5** rated for 50 Hz operation and equipped with Cummins **QSK95-G4** engine:

When tested under the following conditions:

Table 1	
Fuel Specification:	ASTM D975 No. 2-D S15 diesel fuel with 0.0015% sulfur content (by weight), and 42-48 cetane number.
Air Inlet Temperature:	77 °F (25 °C)
Fuel Inlet Temperature:	104 °F (40 °C) at fuel pump inlet
Barometric Pressure:	29.53 in. Hg
Humidity:	NOx measurement corrected to 75 grains H2O/lb. dry air

Based on engine emissions validation testing, the table below represents the nominal performance and exhaust emissions data for the generator set listed above:

	Standby				
PERFORMANCE DATA	**10%**	**25%**	**50%**	**75%**	**100%**
Electrical Power (kWe)	280	700	1400	2100	2800
Engine Power (BHP at 1500 RPM/50Hz)	563	1146	2117	3087	4058
Fuel Consumption (L/Hr)	124	212	359	510	671
Exhaust Gas Flow (m3/min)	153	215	326	444	551
Exhaust Gas Temperature (°C)	276	356	383	388	403
Oxygen Dry (%)	15.2	12.9	11.4	11.1	10.4
NOx (Oxides of Nitrogen)	2785	4034	4646	3933	3959
NMHC (Nonmethane Hydrocarbons)	155	97	59	41	31
CO (Carbon Monoxide)	289	208	173	77	49
PM (Particulate Matter)	18	20	8	4	2
All emissions values above are cited as mg/Nm3@5% O2, 0°C and 101.325 kPa					
NOx (Oxides of Nitrogen)	1044	1513	1742	1475	1485
NMHC (Nonmethane Hydrocarbons)	58	36	22	15	12
CO (Carbon Monoxide)	108	78	65	29	18
PM (Particulate Matter)	7	8	3	2	1
All emissions values above are cited as mg/Nm3@15% O2, 0°C and 101.325 kPa					

Steady-State emissions recorded per ISO8178-1 during operation at rated engine speed (+/-2%) and stated constant load (+/-2%) with engine temperatures, pressures and emission rates stabilized.

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The NOx, HC, CO, and PM emission data tabulated here are representative of test data taken from a single engine under the test conditions shown above. Data for the other components are estimated. This data is subject to instrumentation and engine-to-engine variability. Field emissions test data is not guaranteed to these levels. Actual field test results may vary due to test ambient, site conditions, installation, fuel specification, test procedures, instrumentation and ambient correction factors. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.

Values provided in the table below are representative of "Potential Site Variation" for the Equinix ML9 site in Milan, Italy. These values account for variances as indicated above without consideration of improper generator set maintenance.

	Standby				
PERFORMANCE DATA	**10%**	**25%**	**50%**	**75%**	**100%**
Electrical Power (kWe)	280	700	1400	2100	2800
Engine Power (BHP at 1500 RPM/50Hz)	563	1146	2117	3087	4058
NOx (Oxides of Nitrogen)	4066	5890	6783	5742	5780
NMHC (Nonmethane Hydrocarbons)	264	165	100	70	53
CO (Carbon Monoxide)	578	416	346	154	98
PM (Particulate Matter)	45	50	20	10	5
All emissions values above are cited as mg/Nm3@5% O2, 0°C and 101.325 kPa					
Potential Site variation values provided above are accounted for Engine, Ambient variation and measurement with no correction factors.					

	Standby				
PERFORMANCE DATA	**10%**	**25%**	**50%**	**75%**	**100%**
Electrical Power (kWe)	280	700	1400	2100	2800
Engine Power (BHP at 1500 RPM/50Hz)	563	1146	2117	3087	4058
NOx (Oxides of Nitrogen)	1525	2209	2544	2153	2168
NMHC (Nonmethane Hydrocarbons)	99	62	38	26	20
CO (Carbon Monoxide)	217	156	130	58	37
PM (Particulate Matter)	17	19	8	4	2
All emissions values above are cited as mg/Nm3@15% O2, 0°C and 101.325 kPa					
Potential Site variation values provided above are accounted for Engine, Ambient variation and measurement with no correction factors.					

The values in this letter are applicable for engines operating on ASTM D975 DF2 and paraffinic fuels conforming to EN15940, including Hydrotreated Vegetable Oil (HVO). Please consult Fluids for Cummins Engines bulletin # 3379001 for more information on the applicability of HVO.

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The data and information provided in this letter is for informational purposes to assist customers in making purchasing decisions appropriate for their site-specific compliance needs. Owners/operators of compression ignition internal combustion engines are responsible for ensuring compliance with applicable local, state, and federal standards when CI engines are installed at the owner/operator site. The data and information contained herein regarding site variation values in particular should be considered as part of a site-specific compliance evaluation.

This letter does not supersede any of the commercial terms of sale, including, but not limited to, warranty coverage and compliance with law obligations. THE INFORMATION IN THIS LETTER IS PROVIDED "AS IS" AND WITH ALL FAULTS AND DEFECTS. CUMMINS DOES NOT WARRANT THE ACCURACY OF THE INFORMATION PROVIDED AND THIS LETTER SHOULD NOT BE SHARED WITH THIRD PARTIES WITHOUT CUMMINS PRIOR WRITTEN CONSENT. For further questions on this product or application, please contact the local Cummins Sales and Service representative.

Best Regards,

Miguel Araujo
Application Engineer – Strategic Accounts (Data Center)
Cummins Power Generation

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CERTIFICATE OF COMPLIANCE
SEISMIC DESIGN OF NONSTRUCTURAL COMPONENTS AND SYSTEMS

Certification No.

VMA-49625-01C (Revision 3)

Expiration Date: 4/30/2024

Certification Parameters:

The nonstructural products (mechanical and/or electrical components) listed on this certificate are CERTIFIED[1] FOR SEISMIC APPLICATIONS in accordance with the following building code[2] releases.

IBC 2018, 2015, 2012, 2009; EC8 2004

The following model designations, options, and accessories are included in this certification. Reference report number VMA-49625-01 as issued by The VMC Group for a complete list of certified models, included accessories/options, and certified installation methods.

Cummins Power Generation, Inc.; Diesel Gensets
QSK95 Series; 2,500 kW - 3,750 kW

The above referenced equipment is **APPROVED** for seismic application when properly installed[3], used as intended, and contains a Seismic Certification Label referencing this Certificate of Compliance[4]. As limited by the tabulated values, below grade, grade, and roof-level installations, installations in essential facilities, for life safety applications, and/or of equipment containing hazardous contents are permitted and included in this certification with an Equipment Importance Factor assigned as I_p=1.5. The equipment is qualified by successful seismic shake table testing at the nationally recognized CERL (US Army Corp. of Engineers) Laboratory under the witness of the ISO Accredited Product Certification Agency, the VMC Group.

Certified Seismic Design Levels			
Certified **IBC**	**Importance $I_p \leq 1.5$** Soil Classes A-E Risk Categories I-IV Design Categories A-F	z/h ≤ 1.0	z/h = 0.0
		$S_{DS} \leq 2.000$ g	$S_{DS} \leq 2.400$ g
Certified **EC8**[8]	**Importance $Y_a \leq 1.5$** Soil Classes A-E, Type I-II	$a_g \leq 0.165$ g	$a_g \leq 0.374$ g

Certified Seismic Installation Methods
External Isolation Mounting From Unit Base To Rigid Structure

HEADQUARTERS
113 Main Street
Bloomingdale, NJ 07403
Phone: 973.838.1780
Toll Free: 800.569.8423
Fax: 973.492.8430

CALIFORNIA
180 Promenade Circle
Suite 300
Sacramento, CA 95834
Phone: 916.634.7771

TEXAS
11930 Brittmoore Park Drive
Houston, TX 77041
Phone: 713.466.0003
Fax: 713.466.1355

thevmcgroup.com

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CERTIFICATE OF COMPLIANCE

SEISMIC DESIGN OF NONSTRUCTURAL COMPONENTS AND SYSTEMS

Certified Product Table:

Model	Frequency (Hz)	Max kW Rating	Max kVA Rating	Length (in.)	Width (in.)	Height (in.)	Max Weight (lbs.)
C3500 D5	50	N/A	3500	311	119	144	76566
C3500 D5e							
C3750 D5			3750				78947
C3750 D5e							
C3000 D6	60	3000	N/A				74060
C3000 D6e							
C3250 D6		3500					79807
C3250 D6e							
C3500 D6e							
C3500 D6							

Type	S_{DS} (z/h=0)	S_{DS} (z/h=1)	A_{Flex-H}	A_{Rig-H}	A_{Flex-V}	A_{Rig-V}	F_p/W_p
AC156	2.40	2.00	3.20	2.40	1.61	0.65	4.5

This certification includes the open generator set and included factory supplied options. This certification only covers accessoriesand options directly mounted to the genset. The genset and applicable options shall be installed per the manufacturer supplied seismic installation instructions. For a list of certified configurations and options please directly contact the manufacturer. This certification excludes all non-factory supplied accessories and options, including but not limited toisolation/restraint devices, other electrical/mechanical components and all connections for electrical, fuel, heating or cooling fluid, or otherpipe/conduit connections and configurations not detailed in the above charts. Flexibility in the connections must be maintained as to not transmitload into the equipment. Fuel tanks, enclosures, and design specials are outside the scope of this certification.

IBC® CERTIFIED
VMC GROUP

VMA-49625-01C (Revision 3)
Issue Date: Friday, April 17, 2015
Revision Date: Tuesday, March 16, 2021
Expiration Date: Tuesday, April 30, 2024

CERTIFICATE OF COMPLIANCE

SEISMIC DESIGN OF NONSTRUCTURAL COMPONENTS AND SYSTEMS

Cross-Code Compliance:

EC8 Approved Equivalent a_g							
Earthquake Type	Install Height	f_1/f_a					
		0.01	0.10	0.50	1.0	2.0	100.0
Type 2 Only	z/h = 0.0	0.701	0.614	0.374	0.284	0.711	0.711
Type 1 Only	z/h = 0.0	0.596	0.596	0.481	0.366	0.596	0.596
Type 1 and Type 2	z/h = 0.0			0.374	0.284		
Type 2 Only	z/h = 1.0	0.281	0.253	0.165	0.129	0.284	0.711
Type 1 Only	z/h = 1.0	0.361	0.325	0.213	0.166	0.366	0.596
Type 1 and Type 2	z/h = 1.0	0.281	0.253	0.165	0.129	0.284	

* The type of earthquake to use per country/region is listed in the national annex
* The f_1/f_a is fundamental frequency of the building divided by that of the component
* The column for f_1/f_a can be used as the most conservative approved ground motion

VMA-49625-01C (Revision 3)
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CERTIFICATE OF COMPLIANCE
SEISMIC DESIGN OF NONSTRUCTURAL COMPONENTS AND SYSTEMS

Notes & Comments:

1. All equipment listed herein successfully passed the seismic acceptance criteria for shake testing non-structural components and systems as set forth in the ICC AC-156. The Test Response Spectrum (TRS) enveloped the Required Response Spectrum (RRS) for all units tested. The tested units were representative sample(s) of a contingent of models and all remained captive and structurally sound after the seismic shake simulation. The units also remained functionally operational after the simulation testing as functional testing was completed by the equipment manufacturer before and after the seismic simulations. Although a seismic qualified unit inherently contains some wind resisting capacity, that capacity is undetermined and is excluded from this certification. Snow/Ice loads have been neglected and thus limit the unit to be installed both indoors (covered by an independent protective structure) and out of doors (exposed to accumulating snow/ice) for ground snow loads no greater than 30 psf for all applications.

2. The following building codes are addressed under this certification:
   IBC 2018 referencing ASCE7-16 and ICC-ES AC-156
   IBC 2015 referencing ASCE7-10 and ICC-ES AC-156
   IBC 2012 referencing ASCE7-10 and ICC-ES AC-156
   IBC 2009 referencing ASCE7-05 and ICC-ES AC-156
   EC8 2004 full reference Eurocode EN-1998 2004

3. Refer to the manufacturer supplied installation drawings for anchor requirements and mounting considerations for seismic applications. Required anchor locations, size, style, and load capacities (tension and shear) may be specified on the installation drawings or specified by a 3rd party. Mounting requirement details such as anchor brand, type, embedment depth, edge spacing, anchor-to-anchor spacing, concrete strength, special inspection, wall design, and attachment to non-building structures must be outlined and approved by the Engineer of Record for the project or building. Structural walls, structural floors, and housekeeping pads must also be seismically designed and approved by the project or building Structural Engineer of Record to withstand the seismic anchor loads as defined on the installation drawings. The installing contractor is responsible for ensuring the proper installation of all anchors and mounting hardware.

4. For this certificate and certification to remain valid, this certificate must correspond to the "Seismic Certification Label" found affixed to the unit by the factory. The label ensures the manufacturer built the unit in conformance to the IBC seismic design criteria set forth by the Certified Seismic Qualification Agency, the VMC Group, and meets the seismic design levels claimed by this certificate.

5. Mechanical, Electrical, and Plumbing connections to the equipment must be flexibly attached as to not transfer load through the connection. The structural integrity of any conduit, cable trays, piping, ductwork and/or flexible connections is the responsibility of others. This certification does not guarantee the equipment will remain compliant to NEMA, IP, UL, or CSA standards after a seismic event.

6. This certificate applies to units manufactured at:
   1400 73rd Ave NE, Fridley, MN 55432

7. This certification follows the VMC Group's ISO-17065 Scheme.

8. The Eurocode 8 maximum ground motion for equipment installed at grade or roof listed assumes that the fundamental frequency of the component is exactly twice that of the building (approximately 5 times more stiff compared to the building). If the frequency of the building or equipment is not known for a particular project, the cross-code table for EC8 may be used after the certified product table for the value of f_1/f_a as it represents the worst case amplification (and thus approves the lowest most conservative maximum ground motion).

John P. Giuliano, PE
President, VMC Group

IAS ACCREDITED Product Certification Agency

VMA-49625-01C (Revision 3)
Issue Date: Friday, April 17, 2015
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IBC CERTIFIED VMC GROUP

Cooling System Data
C3500 D5

High Ambient Air Temperature Radiator Cooling System

	Fuel Type	Duty	Rating (kW)	Max cooling @ air flow static restriction, unhoused (inches water/mm water)					Housed in free air, no air discharge restriction		
				0.0/0.0	0.25/6.4	0.5/12.7	0.75/19.1	1.0/25.4	Weather	Sound level 1	Sound level 2
				Maximum allowable ambient temperature, degree C							
50 Hz	Diesel	Standby	2800	46	46	45	44	43	N/A	N/A	N/A
		Prime	2500	44	44	44	43	42	N/A	N/A	N/A
		Continuous	2200	45	45	44	44	43	N/A	N/A	N/A
		DCC	2500	47	47	46	46	45	N/A	N/A	N/A
				Airflow (m^3/s) – Actual @ Fan							
				61.3	58.2	55	53	51	N/A	N/A	N/A

High Ambient Air Temperature Radiator Cooling System - Compact

	Fuel Type	Duty	Rating (kW)	Max cooling @ air flow static restriction, unhoused (inches water/mm water)					Housed in free air, no air discharge restriction		
				0.0/0.0	0.25/6.4	0.5/12.7	0.75/19.1	1.0/25.4	Weather	Sound level 1	Sound level 2
				Maximum allowable ambient temperature, degree C							
50 Hz	Diesel	Standby	2800	52	51	50	49	48	N/A	N/A	N/A
		Prime	2500	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Continuous	2200	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		DCC	2500	57	56	56	55	54	N/A	N/A	N/A
				Airflow (m^3/s) – Actual @ Fan							
				45	44	42.8	41.6	40.9	N/A	N/A	N/A

Cooling System Data
C3500 D5

Enhanced High Ambient Air Temperature Radiator Cooling System											
				Max cooling @ air flow static restriction, unhoused (inches water/mm water)					Housed in free air, no air discharge restriction		
				0.0/0.0	0.25/6.4	0.5/12.7	0.75/19.1	1.0/25.4	Weather	Sound level 1	Sound level 2
	Fuel Type	**Duty**	**Rating (kW)**	**Maximum allowable ambient temperature, degree C**							
50 Hz	Diesel	Standby	2800	56	56	55	54	53	N/A	N/A	N/A
		Prime	2500	54	54	54	53	52	N/A	N/A	N/A
		Continuous	2200	55	55	54	54	53	N/A	N/A	N/A
		DCC	2500	57	57	56	56	55	N/A	N/A	N/A
				Airflow (m^3/s) – Actual @ Fan							
				61.3	58.2	55	53	51	N/A	N/A	N/A

Notes:

1. Data shown are anticipated cooling performance for typical generator set.
2. Cooling data is based on 1000 ft (305 m) site test location.
3. Generator set power output may need to be reduced at high ambient conditions. Consult generator set data sheet for derate schedules.
4. Cooling performance may be reduced due to several factors including but not limited to: Incorrect installation, improper operation, fouling of the cooling system, and other site installation variables.

A-weighted Sound Pressure Level @ 7 meters, dB(A)

See notes 2, 5 and 7-11 listed below

Configuration	Exhaust	Applied Load	Position (Note 2)								8 Position Average
			1	2	3	4	5	6	7	8	
Standard – Unhoused (Remote Cooling)	Infinite Exhaust	0% Standby	87.1	91.7	90.2	90.8	88.6	92.0	91.8	90.3	90.6
		50% Standby	90.4	94.5	93.2	93.9	92.0	95.2	95.8	93.5	93.8
		75% Standby	91.4	95.2	94.1	94.4	92.9	96.1	96.3	94.3	94.6
		100% Standby	91.4	96.2	94.3	95.3	92.7	96.4	96.8	95.3	95.1
Standard – Unhoused (High Ambient)	Infinite Exhaust	0% Standby	90.5	95.1	95.7	95.5	96.9	95.9	95.4	97.8	95.7
		50% Standby	91.4	95.8	96.4	95.9	96.6	96.8	96.2	98.5	96.3
		75% Standby	92.3	96.8	97.1	96.6	96.6	97.6	96.9	99.2	97.0
		100% Standby	92.4	97.4	97.6	96.9	96.4	98.1	97.4	99.7	97.4
Standard – Unhoused (Enhanced High Ambient)	Infinite Exhaust	0% Standby	90.5	95.1	95.7	95.5	96.9	95.9	95.4	97.8	95.7
		50% Standby	91.4	95.8	96.4	95.9	96.6	96.8	96.2	98.5	96.3
		75% Standby	92.3	96.8	97.1	96.6	96.6	97.6	96.9	99.2	97.0
		100% Standby	92.4	97.4	97.6	96.9	96.4	98.1	97.4	99.7	97.4
Standard – Unhoused (Compact High Ambient)	Infinite Exhaust	0% Standby	89.3	95.0	95.3	96.2	96.6	96.2	95.8	93.7	95.2
		50% Standby	90.4	95.9	96.3	96.6	96.2	96.6	96.8	94.7	95.8
		75% Standby	91.1	96.6	96.8	97.1	96.0	97.2	97.5	95.7	96.3
		100% Standby	91.7	98.0	98.3	98.3	96.2	98.1	98.4	96.3	97.3

Sound Data
C3500 D5
QSK95-G4 50Hz Diesel

Average A-weighted Sound Pressure Level @ 1 meter, dB(A)

See notes 1, 5 and 7-14 listed below

Configuration	Exhaust	Applied Load	Octave Band Center Frequency (Hz)											Overall Sound Pressure Level
			16	31.5	63	125	250	500	1000	2000	4000	8000	16000	
Standard – Unhoused (Remote Cooling)	Infinite Exhaust	0% Standby	N/A	46.0	64.9	78.7	88.7	92.1	94.2	92.4	88.3	80.0	67.6	98.8
		50% Standby	N/A	47.8	65.9	80.9	88.5	94.7	96.7	96.2	92.9	91.0	74.6	102.0
		75% Standby	N/A	48.8	66.5	81.9	89.0	94.8	96.6	97.6	94.0	95.4	77.3	103.1
		100% Standby	N/A	49.0	67.4	82.7	88.8	94.1	96.6	97.8	94.6	98.6	77.5	103.9
Standard – Unhoused (High Ambient)	Infinite Exhaust	0% Standby	N/A	51.1	66.0	91.5	95.2	97.1	96.2	93.5	88.3	78.8	65.0	102.3
		50% Standby	N/A	52.4	66.1	91.3	95.2	96.8	96.6	95.1	90.1	89.0	70.0	102.8
		75% Standby	N/A	52.3	66.5	91.1	95.3	97.0	97.1	96.2	91.4	92.2	72.2	103.4
		100% Standby	N/A	49.9	66.4	91.3	95.3	96.9	97.4	96.4	92.5	94.3	73.5	103.8
Standard – Unhoused (Enhanced High Ambient)	Infinite Exhaust	0% Standby	N/A	51.1	66.0	91.5	95.2	97.1	96.2	93.5	88.3	78.8	65.0	102.3
		50% Standby	N/A	52.4	66.1	91.3	95.2	96.8	96.6	95.1	90.1	89.0	70.0	102.8
		75% Standby	N/A	52.3	66.5	91.1	95.3	97.0	97.1	96.2	91.4	92.2	72.2	103.4
		100% Standby	N/A	49.9	66.4	91.3	95.3	96.9	97.4	96.4	92.5	94.3	73.5	103.8
Standard – Unhoused (Compact High Ambient)	Infinite Exhaust	0% Standby	N/A	47.9	68.3	84.7	92.9	96.3	97.4	94.7	91.5	83.9	70.1	102.2
		50% Standby	N/A	48.6	68.0	85.2	92.9	96.2	97.4	95.7	92.9	91.4	74.3	102.8
		75% Standby	N/A	48.8	67.9	85.5	93.0	96.2	97.6	96.3	93.6	95.5	75.2	103.5
		100% Standby	N/A	48.2	67.7	85.8	92.9	96.4	97.9	97.2	94.9	99.2	77.1	104.7

Sound Data
C3500 D5
QSK95-G4 50Hz Diesel

A-weighted Sound Pressure Level @ Operator Location, dB(A)

See notes 1, 5 and 7-15 listed below

Configuration	Exhaust	Applied Load	Octave Band Center Frequency (Hz)											Overall Sound Pressure Level
			16	31.5	63	125	250	500	1000	2000	4000	8000	16000	
Standard – Unhoused (Remote Cooling)	Infinite Exhaust	75% Standby	N/A	48.4	66.0	84.1	87.1	94.3	95.6	95.9	92.1	93.4	74.5	101.7
		100% Standby	N/A	48.6	67.1	85.1	87.3	93.7	95.5	96.1	92.3	96.3	74.6	102.3
Standard – Unhoused (High Ambient)	Infinite Exhaust	75% Standby	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		100% Standby	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Standard – Unhoused (Enhanced High Ambient)	Infinite Exhaust	75% Standby	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		100% Standby	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Standard – Unhoused (Compact High Ambient)	Infinite Exhaust	75% Standby	N/A	48.5	71.6	82.4	91.2	94.9	97.6	96.3	91.3	93.6	72.8	102.6
		100% Standby	N/A	47.5	70.3	81.7	90.8	94.9	97.4	96.2	91.7	96.8	74.1	103.1

Sound Data
C3500 D5
QSK95-G4 50Hz Diesel

A-weighted Sound Power Level, dB(A)

See notes 1, 3 and 6-14 listed below

Configuration	Exhaust	Applied Load	Octave Band Center Frequency (Hz)											Overall Sound Power Level
			16	31.5	63	125	250	500	1000	2000	4000	8000	16000	
Standard – Unhoused (Remote Cooling)	Infinite Exhaust	0% Standby	N/A	66.5	85.4	99.3	109.3	112.7	114.8	113.0	108.9	100.6	88.2	119.4
		50% Standby	N/A	68.3	86.5	101.5	109.1	115.3	117.3	116.8	113.4	111.6	95.2	122.6
		75% Standby	N/A	69.4	87.1	102.5	109.6	115.4	117.2	118.2	114.5	116.0	97.9	123.7
		100% Standby	N/A	69.5	88.0	103.3	109.4	114.7	117.2	118.4	115.2	119.2	98.1	124.5
Standard – Unhoused (High Ambient)	Infinite Exhaust	0% Standby	N/A	73.8	88.8	114.3	118.0	119.8	119.0	116.3	111.1	101.6	87.8	125.1
		50% Standby	N/A	75.2	88.9	114.1	118.0	119.5	119.4	117.8	112.9	111.8	92.8	125.6
		75% Standby	N/A	75.0	89.2	113.9	118.1	119.7	119.9	119.0	114.2	114.9	95.0	126.2
		100% Standby	N/A	72.7	89.2	114.0	118.1	119.7	120.2	119.2	115.3	117.1	96.2	126.6
Standard – Unhoused (Enhanced High Ambient)	Infinite Exhaust	0% Standby	N/A	73.8	88.8	114.3	118.0	119.8	119.0	116.3	111.1	101.6	87.8	125.1
		50% Standby	N/A	75.2	88.9	114.1	118.0	119.5	119.4	117.8	112.9	111.8	92.8	125.6
		75% Standby	N/A	75.0	89.2	113.9	118.1	119.7	119.9	119.0	114.2	114.9	95.0	126.2
		100% Standby	N/A	72.7	89.2	114.0	118.1	119.7	120.2	119.2	115.3	117.1	96.2	126.6
Standard – Unhoused (Compact High Ambient)	Infinite Exhaust	0% Standby	N/A	70.3	90.8	107.2	115.3	118.8	119.8	117.1	113.9	106.3	92.5	124.6
		50% Standby	N/A	71.0	90.5	107.6	115.4	118.7	119.8	118.2	115.3	113.9	96.7	125.2
		75% Standby	N/A	71.2	90.4	107.9	115.5	118.6	120.1	118.7	116.0	117.9	97.7	125.9
		100% Standby	N/A	70.7	90.1	108.2	115.4	118.8	120.3	119.6	117.4	121.7	99.5	127.2

Exhaust Sound Power Level, dB(A)

See notes 4 and 6-14 listed below

Configuration	Applied Load	Octave Band Center Frequency (Hz)											Overall Sound Power Level
		16	31.5	63	125	250	500	1000	2000	4000	8000	16000	
Open Exhaust (With Tailpipe)	0% Standby	N/A	61.9	82.9	93.1	105.2	106.6	106.8	105.1	101.7	93.2	80.6	112.5
	50% Standby	N/A	61.6	87.5	96.8	114.4	114.6	113.7	115.0	112.2	104.7	88.0	121.2
	75% Standby	N/A	66.4	91.1	98.3	118.1	114.8	115.8	117.9	115.9	109.0	96.5	123.8
	100% Standby	N/A	66.4	94.7	100.2	120.8	116.7	117.7	119.4	118.2	112.3	99.3	126.0

Global Notes:

1. Sound pressure levels at 1 meter are measured per the requirements of ISO 3744, ISO 8528-10, and European Communities Directive 2000/14/EC as applicable. The microphone measurement locations are 1 meter from a reference parallelepiped just enclosing the generator set (enclosed or unenclosed).
2. Seven-meter measurement location 1 is 7 meters (23 feet) from the generator (alternator) end of the generator set, and the locations proceed counter-clockwise around the generator set at 45° angles at a height of 1.2 meters (48 inches) above the ground surface.
3. Sound Power Levels are calculated according to ISO 3744, ISO 8528-10, and or CE (European Union) requirements.
4. Exhaust Sound Levels are measured and calculated per ISO 6798, Annex A.
5. Reference Sound Pressure Level is 20 µPa.
6. Reference Sound Power Level is 1 pW (10^{-12} Watt).
7. Fan noise is not included for the configuration with remote cooling system. Fan noise is included for the configurations with a specific cooling system.
8. Sound data for the generator set with infinite exhaust do not include the exhaust noise contribution.
9. Published sound levels are measured at CE certified test site and are subject to instrumentation, measurement, installation and manufacturing variability.
10. Unhoused/Open configuration generator sets refers to generator sets with no sound enclosures of any kind.
11. Housed/Enclosed/Closed/Canopy configuration generator sets refer to generator sets that have noise reduction sound enclosures installed over the generator set and usually integrally attached to the skid base/base frame/fuel container base of the generator set.
12. Published sound levels meet the requirements India's Central Pollution Control Board (Ministry of Environment & Forests),vide GSR 371 (E), which states the A-weighted sound level at 1 meter from any diesel generator set up to a power output rating of 1000kVA shall not exceed 75dB(A)
13. For updated noise pollution information for India see website: http://www.envfor.nic.in/legis/legis.html
14. Sound levels must meet India's Ambient Air Noise Quality Standards detailed for Daytime/Night-time operation in Noise Pollution (Regulation and Control) Rules, 2000
15. Operator Location is near genset control panel and is at 1 meter distance from genset control panel and at 1.5 height.

SSE 2025_150

December 3rd, 2025

To Whom It May Concern:

With regards to Cummins Power Systems (CPS) manufactured diesel generator set model **C3500 D5** rated for 50 Hz operation and equipped with Cummins **QSK95-G4** engine:

When tested under the following conditions:

Table 1	
Fuel Specification:	ASTM D975 No. 2-D S15 diesel fuel with 0.0015% sulfur content (by weight), and 42-48 cetane number.
Air Inlet Temperature:	77 °F (25 °C)
Fuel Inlet Temperature:	104 °F (40 °C) at fuel pump inlet
Barometric Pressure:	29.53 in. Hg / 100 kPa
Humidity:	NOx measurement corrected to 10.7 g/kg of dry air (12.291 g/m3)

Based on engine emissions validation testing, the table below represents the nominal performance and exhaust emissions data for the generator set listed above:

	Standby				
PERFORMANCE DATA	**10%**	**25%**	**50%**	**75%**	**100%**
Electrical Power (kWe)	280	700	1400	2100	2800
Engine Power (BHP at 1500 RPM/50Hz)	563	1146	2117	3087	4058
Fuel Consumption (L/Hr)	124	212	359	510	671
Exhaust Gas Flow (m3/min)	153	215	326	444	551
Exhaust Gas Temperature (°C)	276	356	383	388	403
Oxygen Dry (%)	15.2	12.9	11.4	11.1	10.4
NOx (Oxides of Nitrogen)	2785	4034	4646	3933	3959
NMHC (Nonmethane Hydrocarbons)	155	97	59	41	31
CO (Carbon Monoxide)	289	208	173	77	49
PM (Particulate Matter)	18	20	8	4	2
All emissions values above are cited as mg/Nm3@5% O2, 0°C and 101.325 kPa					
NOx (Oxides of Nitrogen)	1044	1513	1742	1475	1485
NMHC (Nonmethane Hydrocarbons)	58	36	22	15	12
CO (Carbon Monoxide)	108	78	65	29	18
PM (Particulate Matter)	7	8	3	2	1
All emissions values above are cited as mg/Nm3@15% O2, 0°C and 101.325 kPa					

Steady-State emissions recorded per ISO8178-1 during operation at rated engine speed (+/-2%) and stated constant load (+/-2%) with engine temperatures, pressures and emission rates stabilized.

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The NOx, HC, CO, and PM emission data tabulated here are representative of test data taken from a single engine under the test conditions shown above. Data for the other components are estimated. This data is subject to instrumentation and engine-to-engine variability. Field emissions test data is not guaranteed to these levels. Actual field test results may vary due to test ambient, site conditions, installation, fuel specification, test procedures, instrumentation and ambient correction factors. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.

Values provided in the table below are representative of "Potential Site Variation" for the Equinix ML8 site in Milan, Italy. These values account for variances as indicated above without consideration of improper generator set maintenance.

	Standby				
PERFORMANCE DATA	**10%**	**25%**	**50%**	**75%**	**100%**
Electrical Power (kWe)	280	700	1400	2100	2800
Engine Power (BHP at 1500 RPM/50Hz)	563	1146	2117	3087	4058
NOx (Oxides of Nitrogen)	4066	5890	6783	5742	5780
NMHC (Nonmethane Hydrocarbons)	264	165	100	70	53
CO (Carbon Monoxide)	578	416	346	154	98
PM (Particulate Matter)	45	50	20	10	5
All emissions values above are cited as mg/Nm3@5% O2, 0°C and 101.325 kPa					
Potential Site variation values provided above are accounted for Engine, Ambient variation and measurement with no correction factors.					

	Standby				
PERFORMANCE DATA	**10%**	**25%**	**50%**	**75%**	**100%**
Electrical Power (kWe)	280	700	1400	2100	2800
Engine Power (BHP at 1500 RPM/50Hz)	563	1146	2117	3087	4058
NOx (Oxides of Nitrogen)	1525	2209	2544	2153	2168
NMHC (Nonmethane Hydrocarbons)	99	62	38	26	20
CO (Carbon Monoxide)	217	156	130	58	37
PM (Particulate Matter)	17	19	8	4	2
All emissions values above are cited as mg/Nm3@15% O2, 0°C and 101.325 kPa					
Potential Site variation values provided above are accounted for Engine, Ambient variation and measurement with no correction factors.					

The values in this letter are applicable for engines operating on ASTM D975 DF2 and paraffinic fuels conforming to EN15940, including Hydrotreated Vegetable Oil (HVO). Please consult Fluids for Cummins Engines bulletin # 3379001 for more information on the applicability of HVO.

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The data and information provided in this letter is for informational purposes to assist customers in making purchasing decisions appropriate for their site-specific compliance needs. Owners/operators of compression ignition internal combustion engines are responsible for ensuring compliance with applicable local, state, and federal standards when CI engines are installed at the owner/operator site. The data and information contained herein regarding site variation values in particular should be considered as part of a site-specific compliance evaluation.

This letter does not supersede any of the commercial terms of sale, including, but not limited to, warranty coverage and compliance with law obligations. THE INFORMATION IN THIS LETTER IS PROVIDED "AS IS" AND WITH ALL FAULTS AND DEFECTS. CUMMINS DOES NOT WARRANT THE ACCURACY OF THE INFORMATION PROVIDED AND THIS LETTER SHOULD NOT BE SHARED WITH THIRD PARTIES WITHOUT CUMMINS PRIOR WRITTEN CONSENT. For further questions on this product or application, please contact the local Cummins Sales and Service representative.

Best Regards,

Miguel Araujo
Application Engineer – Strategic Accounts (Data Center)
Cummins Power Generation

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Application & Performance Data Sheet

All data listed is subject to change based on engine data supplied either by genset testing data or emission data sheet (EDS). Calculated clean gas emissions are based on the listed raw gas emission values and refer to required exhaust gas values.

SCR reaction and catalyst capacity is dependent on engine operation and specifically related to fuel quality, exhaust gas temperature and volume flow. Real operation values may vary.

1.1. Project Information

Engine data		Unit
Site Location	Milano / Italia	
Project Name / Project No.	ML8 / 208005 | ML9 / 208646	
Engine Brand and Type	Cummins QSK95-G4	
Operation hours	100	h/Year
Fuel	EN590	
Exhaust gas backpressure	67	mbar
Field of use	Mission critical	
Exhaus Data Sheet	EQX ML9 C3500D5 QSK95-G4 Potential Site Variation	

1.2. Rawgas-Emission of the engine

Exhaust data	Loadpoint 1	Unit
	100	%
Power	2800	kW
Speed	1500	rpm
Exhaust gas volume flow	33060	m³/h
Temperature	403	°C
NOx	5780	mg/Nm³@refO_2
CO	98	mg/Nm³@refO_2
Process O_2 *	10	%
Reference O_2	5	%

* Process oxygen is Hug Engineering assumption

1.3. Required exhaust gas value

Exhaust data	Loadpoint 1	Unit
NOx	60	mg/Nm³@refO_2
Conversion rate required	97	%
NH_3	15	mg/Nm³@refO_2
Reference O_2	15	%

CO and PM emissions are excluded from Hug's scope. Therefore engine raw values should be considered.

1.4. Pressure loss | Consumption

Name	Loadpoint 1	Unit
Pressure loss	22	mbar
NO/NO_2 rate	10:1	
Urea solution 32,5 %	100.3	l/h
Urea solution 40 %	81.5	l/h

December 3rd, 2025

Subject: Thermal Input Statement of the C3500D5

The purpose of this letter is to confirm the thermal input of Cummins Power Generation generator set model C3500D5 at the operating conditions of 50Hz (1500rpm) and application rating of 2800 kWe as installed in the ML8 site.

The calculated thermal energy input is 6749kw as result of the mechanical and thermal energy of the QSK95-G4 engine at stated conditions on the engine datasheet.

The method of calculation was based on the following inputs below:

- Engine Power
- Radiated heat to the ambient
- Heat rejected to engine jacket water
- Heat rejected to exhaust
- Heat rejected to fuel
- Heat rejected to coolant (after-cooler)

Hope the above meets our requirements.

Miguel Araujo
Application Engineer – Strategic Accounts (Data Center)
Cummins Power Generation

Allegato 2

Dati di emissione generatori Data Center ML7

Contents

	Genset	Marine	O & G	Rail	C & I
Application	X				
Engine model	20V4000G94F				
Rated power [kW]	3088				
Rated speed [rpm]	1500				
Application Group	3D				
Legislative body	Fuel-consumption optimized				
Test cycle	D2				
Data Set No.	XZ54954100065				
Data Set Basis	Fuel-consumption optimized				
Fuel sulphur content [ppm]	5				

Content **Page**

Disclaimer 2

Emission data sheet (EDS) 3

Not to exceed emission values 5

PDF	Name	Project no.	Size
		-	A4
Configurator	Theiss, Sandro (TVMG)	Order no. -	
Approver1	Kneifel, Alexander (TSLE)	EDS-ID	
Approver2	Buecheler, Otto (TVM)	1162-14.02.2022	
Approver3			
Approver4			
User	FN2\graeter		

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Engine model
20V4000G94F

Title
Emission data sheet

Description of Revision	Frequency

Data generated by EDS Creator version 1.0 and uniplot.
Ref.-dataset: 420122_366_TETP_D2.nc for 1008 in EDS platfrom.

Emissionstage
Fuel-consumption optimized

Sheet **1** of **5**

Configuration-ID	Documentation	Emissionstage basis
1008	Request Alexander Wanzki	**Fuel-consumption optimized**

General Disclaimers (valid for Measured and NTE values)

Please note that these data are physical and/or technical values only referring to and representing a normative defined operating condition. Any change in operating time and conditions will have impact on physical values and engine behavior, which must be considered and assessed within the complete propulsion system especially in regard to emission compliance and product safety.

Measurements listed in this EDS are representative of the listed engine rating at the time of testing. These measurements and results can change according to instrumentation, boundary condition, and engine to engine variability. In addition - changes to the engine family hard or software may occur which could result in changes to some of the listed values.

Emissions data measurement procedures are conducted according to applicable rules and standards as per “Emission Stage/Optimization”. Potential deviations from these procedures are documented internally.

The listed emission values relate to the corresponding certification data. Seller doesn´t take any responsibility or liability neither out or in connection with the contract nor on any other basis
- beyond these specified operating conditions of the engine
- and for any installation/modification of the entire propulsion system by the customer itself or any third party
and the customer will indemnify MTU on first demand for any third party claim out or in connection with this.

Seller reserves the right to amend specifications and information without notice and without obligation or liability. No liability for any errors, facts or opinions is accepted. Customers must satisfy themselves as to the suitability of this product for their application. No responsibility for any loss as a result of any person placing reliance on any material contained in this data sheet will be accepted.

Seller reserves all rights in the information contained in this data sheet. It shall not be reproduced, made available to a third party or otherwise used in any way whatsoever.

When applicable, emission values are measured after combined exhaust streams.

Measured Emissions data is based on single operating points and thus cannot be used to compare to regulations which use values based on a weighted cycle.

Field emission test data are not guaranteed to these levels. Actual field test results may vary due to test site conditions, installation, fuel specification, test procedures, and instrumentation. Over time deterioration may occur which may have an impact on emission levels.

The SO2 emission rates comprehend exclusively the SO2 content as found in the fuel source, oil consumption effects are not included. Variation of sulfur content in the fuel changes only the stated SO2 emissions, cross sensitivity to other emissions (e.g. particulates) is not possible.

All values based on metric units, inaccuracies for non metric values can occur, values are not binding.

Specific to gas engines: The listed emission values are based on gas composition at the time of certification measurement. Gas composition is as displayed in the EDS-document. Carbon dioxide and methane concentrations have direct influence on the corresponding displayed carbon dioxide and methane emissions.

EAT Specific Disclaimers (valid for EDS values)

NH3 emissions levels measured with AVL SESAM i60/ 4 FT Multi Component Exhaust Measurement System (FTIR) including EPA 40 CFR 1065 legislation compliant automated checks for linearity.
Generators or engines with exhaust after-treatment systems require a stabilization period of approximately 1 hour to ensure stable temperatures across SCR prior to performing an emissions test. Performing emissions measurements before a stable temperature has been achieved can result in inconsistent emission values. NOx Values only applicable if temperatures across SCR reached for DEF Dosing.

NTE Disclaimers (valid for NTE calculated values)

Calculated not to exceed values (NTE) are not proven by tests and therefore the accuracy is not guaranteed.

All emission data shown in chapters Emission Data Sheet, Not to Exceed Values, and Type Approval were gathered from a corresponding certification engine under test conditions shown above and complying to corresponding TEN data.

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Engine data

	Genset	Marine	O & G	Rail	C & I
Application	X				
Engine model	20V4000G94F				
Application Group	3D				
Legislative body	Fuel-consumption optimized				
Test cycle	D2				
Fuel sulphur content [ppm]	5				
mg/mN^3 values base on residual oxygen value of [%]	15				

Engine raw emissions*

Cycle point	[-]	n1	n2	n3	n4	n5
Power	kW	3090	2315	1543	772	309
Power relative	[-]	1	0.75	0.5	0.25	0.1
Engine speed	1/min	1501	1499	1499	1499	1499
Engine speed relative	[-]	1	1	1	1	1
Filter smoke number	Bosch	0.11	0.2	0.38	0.48	0.09
Exhaust temperature after ETC	grdC	455.1	445.1	444.5	396.8	268.2
Exhaust back pressure after ETC (total)	mbar	29	14	7	0	-4
NOX-Emissions specific	g/kWh	7.81	9.55	7.91	6.13	9.41
SO2-Emissions specific	g/kWh	0.002	0.002	0.002	0.002	0.003
CO-Emissions specific	g/kWh	0.27	0.33	0.42	0.68	1.82
HC1-Emissions specific	g/kWh	0.06	0.06	0.09	0.17	0.54
CO2-Emissions specific	g/kWh	622.4	602.8	629.5	698.4	852
PM-Emissions specific (Meas.)	g/kWh	0.017	0.023	0.054	0.095	0.06
NOX-Emissions (based on 15% O2)	mg/m3N	1074	1357	1075	757	932
CO2-Emissions (based on 15% O2)	mg/m3N	83834	83784	84008	83847	82686

PDF	Name	Project no. -	Size A4
Configurator	Theiss, Sandro (TVMG)	Order no. -	
Approver1	Kneifel, Alexander (TSLE)	EDS-ID 1162-14.02.2022	
Approver2	Buecheler, Otto (TVM)		
Approver3			
Approver4			
User	FN2\graeter		

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Engine model
20V4000G94F

Title
Emission data sheet

Description of Revision	Frequency

Data generated by EDS Creator version 1.0 and uniplot.
Ref.-dataset: 420122_366_TETP_D2.nc for 1008 in EDS platfrom.

Emissionstage
Fuel-consumption optimized

Emissionstage basis
Fuel-consumption optimized

Configuration-ID
1008

Documentation
Request Alexander Wanzki

CO-Emissions (based on 15% O2)	mg/m3N	36.1	45.6	56.3	81.9	176.8
HC1-Emissions (based on 15% O2)	mg/m3N	8.5	8.1	11.7	20	52.1
SO2-Emissions (based on 15% O2)	mg/m3N	0.3	0.3	0.3	0.3	0.3
PM-Emissions (calculated) (based on 15% O2)	mg/m3N	5.5	6.6	9.2	12.9	11.7
PM-Emissions (based on 15% O2)	mg/m3N	2.3	3.2	7.1	11.5	5.8
Oxygen (O2)	%	10.2	10.5	11.3	13.1	15.9

PDF	Name	Project no. -	Size A4
Configurator	Theiss, Sandro (TVMG)	Order no. -	
Approver1	Kneifel, Alexander (TSLE)	EDS-ID 1162-14.02.2022	
Approver2	Buecheler, Otto (TVM)		
Approver3			
Approver4			
User	FN2\graeter		

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Engine model
20V4000G94F

Title
Emission data sheet

Description of Revision	Frequency

Data generated by EDS Creator version 1.0 and uniplot.
Ref.-dataset: 420122_366_TETP_D2.nc for 1008 in EDS platfrom.

Emissionstage
Fuel-consumption optimized

Emissionstage basis
Fuel-consumption optimized

Configuration-ID
1008

Documentation
Request Alexander Wanzki